

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference PCTA9411-9	FOR FURTHER ACTION		See item 4 below
International application No. PCT/KR2004/003286	International filing date ( <i>day/month/year</i> ) 14 December 2004 (14.12.2004)	Priority date ( <i>day/month/year</i> ) 21 February 2004 (21.02.2004)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant Korea Research Institute of Bioscience and Biotechnology			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p>• In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																
<p>3. This report contains indications relating to the following items:</p> <table> <tr> <td><input checked="" type="checkbox"/> Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/> Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/> Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/> Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/> Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/> Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/> Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/> Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/> Box No. I	Basis of the report	<input type="checkbox"/> Box No. II	Priority	<input type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/> Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/> Box No. VI	Certain documents cited	<input type="checkbox"/> Box No. VII	Certain defects in the international application	<input type="checkbox"/> Box No. VIII	Certain observations on the international application
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<input type="checkbox"/> Box No. VIII	Certain observations on the international application															

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. +41 22 338 82 70</p>	Date of issuance of this report 22 August 2006 (22.08.2006)
	<p>Authorized officer</p> <p>Philippe Becamel</p> <p>e-mail: pt12@wipo.int</p>

## PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

SON, Min

19th Floor, City Air Tower 159-9 Samsung-dong, Kangnam-  
gu, Seoul 135-973 Republic of Korea

REC'D 05 APR 2005

PCT WPO PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing  
(day/month/year) 31 MARCH 2005 (31.03.2005)

Applicant's or agent's file reference  
PCTA9411-9

## FOR FURTHER ACTION

See paragraph 2 below

International application No.

**PCT/KR2004/003286**

International filing date (day/month/year)

**14 DECEMBER 2004 (14.12.2004)**

Priority date(day/month/year)

21 FEBRUARY 2004 (21.02.2004)

International Patent Classification (IPC) or both national classification and IPC

**IPC7 C12N 5/12, C12P 21/08, G01N 33/53, C12P 21/08**

Applicant

**Korea Research Institute of Bioscience and Biotechnology et al**

## 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

## 2. FURTHER ACTION


If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

## 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR

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Republic of Korea

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Authorized officer

LEE, CHUNG HO

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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2004/003286

**Box No. I Basis of this opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
☒ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material  
☐ in written format  
☒ in computer readable form
  - c. time of filing/furnishing  
☒ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2004/003286

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims	1-10	YES
	Claims		NO
Inventive step (IS)	Claims	1-10	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

**2. Citations and explanations :**

The following documents have been considered for the purpose of this report:

D1: Mol. Biol. Cell. (OKA, M. et al.) Vol.13(4), pp.1274-1281, April 2002

D2: Cell (SHEVINSKY, L.H. et al.) Vol.30(3), pp.697-705, October 1982

**I. Novelty and Inventive Step**

Claims 1-10 of the present application relate to a monoclonal antibody which specifically binds to a cell surface protein of human embryonic stem(ES) cells but does not bind to mouse ES cells; hybridomas producing the monoclonal antibody(3-4B(KCTC 10599BP), 47-235S(KCTC 10739BP)); a composition for removing undifferentiated human ES cells; and a assay kit for undifferentiated human ES cells comprising the monoclonal antibody.

D1 discloses an anti-CD9 antibody, known to recognize a cell surface protein of human ES cells, but it also binds to mouse ES cells. D2 discloses a monoclonal antibody against carbohydrate antigen(a stage-specific embryonic antigen(SSEP3)) expressed on a human ES cell surface.

Compared with the present application, none of the above-mentioned prior art documents disclose the monoclonal antibodies specifically binding to a cell surface protein of human ES cells and the hybridomas. In addition, the present application is not considered to be easily invented by a person skilled in the art by using the teachings of D1 and D2.

Therefore, the subject matter of claims 1-10 of the present application complies with the requirements of novelty and inventive step under PCT Article 33(2) and (3).

**II. Industrial Applicability**

There is no reason for forming a negative opinion about the industrial applicability of this application. Consequently, claims 1-10 appear to meet the requirement of PCT Article 33(4).